PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Facilitators and barriers to quality of care in maternal, newborn and child health: a global situational analysis through meta-review
AUTHORS	Nair, Manisha; Yoshida, Sachiyo; Lambrechts, Thierry; Boschi-Pinto, Cynthia; Bose, Krishna; Mason, Elizabeth; Mathai, Matthews

VERSION 1 - REVIEW

REVIEWER	Philippa Middleton The University of Adelaide, Australia Philippa Middleton works as a perinatal epidemiologist, often involving evidence synthesis
REVIEW RETURNED	05-Mar-2014

GENERAL COMMENTS	The inclusion criteria are unclear to me e.g. unclear how ref 44 was included. Sometimes there is a mismatch between the review findings and the description in the manuscript.

REVIEWER	Diego G Bassani Centre for Global Child Health, The Hospital for Sick Children, Canada
REVIEW RETURNED	07-Mar-2014

- The reviewer completed the checklist but made no further comments.

REVIEWER	Mats Målqvist International Maternal and Child Health, Uppsala University, Sweden
REVIEW RETURNED	10-Mar-2014

GENERAL COMMENTS	Thanks for letting me interview this interesting manuscript that deal with an important area for the efforts to strengthen public health. I have but a few comments that could be taken into consideration but that is in no way a hinderance for publication. The authors state that it is not known to what extent the WHO framework is fitting to the discourse on QoC. Given the influence of WHO on the general research agendan, this seems to be a strange statement. Of course researchers around the globe are sensitive to the frameworks and guidelines published by WHO, and it seems obvious that the available research should circle around such a framework. Maybe the authors can consider some other formulation saying that they "will fit the results to the existing framework, and explore further

	dimensions, not previously included". Maybe the research gaps can be stated in the abstract, like the limited focus on leadership found. And also state some more key findings in the abstract in order to pinpoint the contribution ofthis meta-review.

REVIEWER	Kathleen Hill Performance and Quality Institute, University Research Co.LLC-Center for Human Services (URC-CHS) USA No competing interests except for occasional participation in common technical meetings with two of the paper authors (Elizabeth Martin and Matthew Matthews).
REVIEW RETURNED	28-Mar-2014

GENERAL COMMENTS	This is an important and timely meta-review that can make an important contribution to the literature on quality of care and maternal newborn and child health. The presentation of the study findings will be much more coherent and will have greater potential to influence future policy, research and implementation if the study objectives and methods can be more clearly defined. Specific recommendations and rationale: 1. Recommendation: Clarify study objectives and primary outcomes of interest to ensure consistency of methods, research findings and discussion with study objectives Rationale: The objective of the study is not clear and the study results reflect this lack of a clear objective. The stated study objective is “to conduct a global situational analysis to gather evidence that currently exists on quality improvement efforts globally to identify facilitators and barriers to quality of care for MNCH”). Based on this statement it is not clear to this reviewer if the objective of the study is to: 1) Research evidence on “QI interventions to improve care” with respect to the stated outcomes of interest (six IOM aims) --OR-- 2) Research evidence on “facilitators and barriers to high quality care” (e.g. critical obstacles impeding provision of quality of care) with respect to the stated outcomes of interest (IOM aims of care) or within WHO organizational framework categories (care models, etc). These two questions are distinct and need to be clarified to ensure that the methods and results address a clearly stated study objective. The results variously address one of these two questions with greater emphasis overall on the second question regarding facilitators and barriers to high quality care within WHO organizational framework domains. For example, in the results section under the WHO information domain it is stated that “language barriers and lack of qualified interpreters could pose a challenge to effective communication” (p. 6—addresses question #2). Under the WHO regulations and standards domain it is stated that “the systematic reviews that evaluated the impact of standard care practices such as EmOC….did not find strong evidence of their effectiveness in improving health outcomes…”(p.7—addresses question # 1). Primary outcomes of interest are defined as the six IOM goals of the health system (effective, efficient, accessible, acceptable/patient centered, equitable and safe.) However, these stated outcomes of

	interest are not clearly defined for the purpose of this review and the results are not presented to answer the stated outcomes of interest. The term “effective”, one of the six IOM goals of a health system and a stated primary outcome of the research, is used inconsistently throughout the paper further adding to confusion about the outcomes of interest in the results section. 2. Recommendation: Reframe the study objectives and primary outcomes of interest around a single conceptual framework. The paper seems to be primarily focused on analyzing facilitators (including but not limited to QI interventions) and barriers to QoC within the WHO organizational framework categories. Rationale: The use of multiple conceptual models in the paper (IOM goals of health care, Batalden measurement framework and WHO organizational management framework) became confusing even for a reader who is very familiar with all three models. This reviewer recommends limiting the paper to a single conceptual framework -- the WHO organizational framework—since the other two conceptual models are not clearly reflected in the organization and content of the research methods, results and discussion sections and the paper seems to be primarily focused on representing QoC barriers within the WHO organizational framework categories (per results narrative section and results table 1). The Batalden and IOM conceptual models provide an excellent framework for consideration of barriers/facilitators to high quality of care and in this reader’s view offer some advantages over the WHO organizational framework. However, their use in the paper does not reflect the primary intention of these frameworks. For example, Batalden’s QoC measurement framework does not posit “three levels of a system” (see p. X) but rather is a framework for measuring quality of care that includes three primary categories of measures of quality of care: inputs, processes of care and health outcomes’/outputs. A central premise of the Batalden framework is that distal measures of health outcomes (difficult to track in real time) are strongly influenced by more distal measures (inputs and processes) easier to measure in real-time. The use of Batalden’s QoC framework to categorize results of research findings became confusing for this reviewer and resulted in many inconsistencies in categorization of results in Table 1 with respect to inputs, processes and outputs. For example an “intervention” like providing information to women” (Table 1, p. 12, Information domain/outcomes) cannot be easily categorized under an input, process or outcome category. Since Batalden’s framework was intended for a very different purpose, this reviewer recommends dropping Batalden’s categories of inputs, processes and outcomes from table 1. If the study were to focus exclusively on an analysis of major gaps/barriers to quality of care then use of Batalden’s categories of inputs and processes of care might be more reasonable. In conclusion this reviewer considers that the study will be more coherent if it either: 1) Focuses on one of the three conceptual models (IOM, WHO, Batalden) and does not try to incorporate all three frameworks into its methods; OR 2) Proactively develops a more integrated conceptual model that incorporates the most robust elements of the WHO, IOM and Batalden frameworks. This would require significant work and is probably beyond the scope of this paper. However, the WHO

	organizational framework would likely benefit from a closer review of other framework elements to expand definitions of current categories (see below) and to potentially incorporate new categories beyond the two new categories proposed by the study authors (communication and patient satisfaction). 3. Comments on Results section: The paper seems to give more weight in the results and the discussion section to the WHO organizational categories of "information", "patient and population engagement, and the two proposed new categories of "communication" and "satisfaction". There is relatively less content in the results and recommendation sections on the categories of organizational capacity, regulation and standards and models of care. However, much of the QI literature (within and beyond MNCH) focuses on re-organization of systems and processes of care to bridge the gap between proven evidence-based standards and reliable implementation of standards in routine processes of care (translation of inputs/standards into processes of care per Batalden framework.). This rich literature seems under-represented in the paper. This is an important deficit in a paper reviewing "interventions to improve quality of care" given the strong focus in most QI interventions on processes of care (organizational capacity, models of care) and use of information (measures of quality) to track progress (or lack of progress) toward adherence with proven standards of care. This gap may in part be related to gaps within the WHO organizational framework categories that do not adequately reflect the current status of the science of improvement. For example, the WHO information category (and hence paper results) focuses primarily on information use by providers and clients; however, use of information (e.g. aggregated quality of care measures) by users and health system managers/providers for the purposes of continuously improving care and essential system functions is a central principle of all improvement efforts. The results do not address this critical use of information to improve care. It would seem that there is a good case to be made for proposing an expansion of the WHO organizational "information" category to include the purposeful use of information related to quality of care (all levels of health system) to track and improve care. Although the paper argues for "common measurement tools for MNCH to assess common priority issues and barriers to QOC", the lack of any discussion of quality of care measurement methods or quality of care measures with respect to "interventions to improve care" is a major weakness of the paper. The quality of care literature, including MNCH literature, is filled with such measures. If one of the stated primary outcome of interest is "effectiveness of care" (one of the IOM aims) then measures of clinical effectiveness of care must be incorporated into the research review findings with respect to specific interventions. Comment on Methods section: p. 4. "We restricted the meta-review to published and unpublished systematic reviews and/or meta-analyses of interventions (any new measure which is not a standard guideline or recommendation) and existing strategies (measures that are well established and incorporated in standard guidelines or recommendations) to improve QOC….." The definition of "interventions" and "strategies" in the above sentence is not clear to this reviewer and further adds to the confusion around the primary objective of the study (to analyze

	evidence on approaches to improving quality or to analyze evidence with respect to important quality of care gaps). Comments on Conclusion section: “Priority issues in QOC were common for MNCH and can be grouped under eight [WHO organizational framework] domains”. “Priority issues in QOC” is used loosely throughout the paper, including as the title of Table 1. What does this mean exactly and what does it mean that “priority issues” can be grouped under 8 [WHO organizational] domains? Is the research addressing “priority issues in QoC” with regard to major gaps that impede delivery of high quality of care (“barriers”), facilitators to QOC (QI and other interventions) or other “priority issues” (e.g. research gaps, measurement gaps, etc.)?

VERSION 1 – AUTHOR RESPONSE

Reviewer Name Philippa Middleton
Institution and Country The University of Adelaide, Australia
Please state any competing interests or state ‘None declared’: Philippa Middleton works as a perinatal epidemiologist, often involving evidence synthesis

The inclusion criteria are unclear to me e.g. unclear how ref 44 was included.

Response: The study mentioned in reference 44 uses video games as a tool for information, education and communication and thus included in this review.

Sometimes there is a mismatch between the review findings and the description in the manuscript.

Response: We have checked the manuscript as advised to correct any mismatches.

Reviewer Name Diego G Bassani
Institution and Country Centre for Global Child Health, The Hospital for Sick Children, Canada
Please state any competing interests or state ‘None declared’: None declared.

No comments returned. Publication recommended.

Reviewer Name Mats Målqvist
Institution and Country International Maternal and Child Health, Uppsala University, Sweden
Please state any competing interests or state ‘None declared’: None declared

Thanks for letting me interview this interesting manuscript that deal with an important area for the efforts to strengthen public health.
I have but a few comments that could be taken into consideration but that is in no way a hinderance for publication. The authors state that it is not known to what extent the WHO framework is fitting to the discourse on QoC. Given the influence of WHO on the general research agendan, this seems to be a strange statement. Of course researchers around the globe are sensitive to the frameworks and guidelines published by WHO, and it seems obvious that the available research should circle around such a framework. Maybe the authors can consider some other formulation saying that they "will fit the results to the existing framework, and explore further dimensions, not previously included".
Maybe the research gaps can be stated in the abstract, like the limited focus on leadership found. And

also state some more key findings in the abstract in order to pinpoint the contribution of this meta-review.

Response: We have updated the manuscript and the abstract as suggested.

Reviewer Name Kathleen Hill
Institution and Country Institution:
Performance and Quality Institute,
University Research Co.LLC-Center for Human Services (URC-CHS)
Country: USA
Please state any competing interests or state 'None declared': None, except for occasional participation in common technical meetings with two of the paper authors (Elizabeth Martin and Matthew Matthews).

General: This is an important and timely meta-review that can make an important contribution to the literature on quality of care and maternal newborn and child health. The presentation of the study findings will be much more coherent and will have greater potential to influence future policy, research and implementation if the study objectives and methods can be more clearly defined.
Specific recommendations and rationale:
1. Recommendation: Clarify study objectives and primary outcomes of interest to ensure consistency of methods, research findings and discussion with study objectives
Rationale: The objective of the study is not clear and the study results reflect this lack of a clear objective.
The stated study objective is "to conduct a global situational analysis to gather evidence that currently exists on quality improvement efforts globally to identify facilitators and barriers to quality of care for MNCH").
Based on this statement it is not clear to this reviewer if the objective of the study is to:
1) Research evidence on "QI interventions to improve care" with respect to the stated outcomes of interest (six IOM aims) --OR--
2) Research evidence on "facilitators and barriers to high quality care" (e.g. critical obstacles impeding provision of quality of care) with respect to the stated outcomes of interest (IOM aims of care) or within WHO organizational framework categories (care models, etc).
These two questions are distinct and need to be clarified to ensure that the methods and results address a clearly stated study objective. The results variously address one of these two questions with greater emphasis overall on the second question regarding facilitators and barriers to high quality care within WHO organizational framework domains. For example, in the results section under the WHO information domain it is stated that "language barriers and lack of qualified interpreters could pose a challenge to effective communication" (p. 6—addresses question #2). Under the WHO regulations and standards domain it is stated that "the systematic reviews that evaluated the impact of standard care practices such as EmOC….did not find strong evidence of their effectiveness in improving health outcomes…"(p.7—addresses question # 1).
Response: We have clarified the objective in the revised manuscript and abstract as suggested keeping only the 'facilitators and barriers' (corrections in page 5 under the 'background' section in the marked-up copy)

Primary outcomes of interest are defined as the six IOM goals of the health system (effective, efficient, accessible, acceptable/patient centred, equitable and safe.) However, these stated outcomes of interest are not clearly defined for the purpose of this review and the results are not presented to answer the stated outcomes of interest. The term "effective", one of the six IOM goals of a health system and a stated primary outcome of the research, is used inconsistently throughout the paper further adding to confusion about the outcomes of interest in the results section.

Response: We have clarified the reasons for including the health system goals on page 5 under 'methods' section (in the marked-up copy) as follows - "The scope of this meta-review was to identify facilitators and barriers to QoC from the health system's perspective, thus the primary outcome of interest was QoC. Since there is neither a single definition of QoC, nor a single method to measure QoC, we used the six desired goals of the health system – effective, efficient, accessible, acceptable/patient centred, equitable and safe[8] as surrogate indicators of QoC for the purpose of conducting the literature searches."

2. Recommendation: Reframe the study objectives and primary outcomes of interest around a single conceptual framework. The paper seems to be primarily focused on analyzing facilitators (including but not limited to QI interventions) and barriers to QoC within the WHO organizational framework categories.

Rationale:
The use of multiple conceptual models in the paper (IOM goals of health care, Batalden measurement framework and WHO organizational management framework) became confusing even for a reader who is very familiar with all three models. This reviewer recommends limiting the paper to a single conceptual framework --the WHO organizational framework—since the other two conceptual models are not clearly reflected in the organization and content of the research methods, results and discussion sections and the paper seems to be primarily focused on representing QoC barriers within the WHO organizational framework categories (per results narrative section and results table 1).
The Batalden and IOM conceptual models provide an excellent framework for consideration of barriers/facilitators to high quality of care and in this reader's view offer some advantages over the WHO organizational framework. However, their use in the paper does not reflect the primary intention of these frameworks. For example, Batalden's QoC measurement framework does not posit "three levels of a system" (see p. X) but rather is a framework for measuring quality of care that includes three primary categories of measures of quality of care: inputs, processes of care and health outcomes'/outputs. A central premise of the Batalden framework is that distal measures of health outcomes (difficult to track in real time) are strongly influenced by more distal measures (inputs and processes) easier to measure in real-time.
The use of Batalden's QoC framework to categorize results of research findings became confusing for this reviewer and resulted in many inconsistencies in categorization of results in Table 1 with respect to inputs, processes and outputs. For example an "intervention" like providing information to women" (Table 1, p. 12, Information domain/outcomes) cannot be easily categorized under an input, process or outcome category. Since Batalden's framework was intended for a very different purpose, this reviewer recommends dropping Batalden's categories of inputs, processes and outcomes from table 1. If the study were to focus exclusively on an analysis of major gaps/barriers to quality of care then use of Batalden's categories of inputs and processes of care might be more reasonable.
In conclusion this reviewer considers that the study will be more coherent if it either:
1) Focuses on one of the three conceptual models (IOM, WHO, Batalden) and does not try to incorporate all three frameworks into its methods; OR
2) Proactively develops a more integrated conceptual model that incorporates the most robust elements of the WHO, IOM and Batalden frameworks. This would require significant work and is probably beyond the scope of this paper. However, the WHO organizational framework would likely benefit from a closer review of other framework elements to expand definitions of current categories (see below) and to potentially incorporate new categories beyond the two new categories proposed by the study authors (communication and patient satisfaction).

Response: The paper now clearly states that we have used only the WHO's framework to analyse the data. We did not use Batalden's framework, but applied have Donabedian's concept of 'Structure', 'Process' and 'Outcome' to organize the data and filter out non-health system issues related to QoC

(2nd paragraph on page 6 of the marked-up copy). The use of the IoM's goals is clarified in the above response.

3. Comments on Results section:

The paper seems to give more weight in the results and the discussion section to the WHO organizational categories of "information", "patient and population engagement, and the two proposed new categories of "communication" and "satisfaction". There is relatively less content in the results and recommendation sections on the categories of organizational capacity, regulation and standards and models of care. However, much of the QI literature (within and beyond MNCH) focuses on re-organization of systems and processes of care to bridge the gap between proven evidence-based standards and reliable implementation of standards in routine processes of care (translation of inputs/standards into processes of care per Batalden framework.). This rich literature seems under-represented in the paper. This is an important deficit in a paper reviewing "interventions to improve quality of care" given the strong focus in most QI interventions on processes of care (organizational capacity, models of care) and use of information (measures of quality) to track progress (or lack of progress) toward adherence with proven standards of care.
This gap may in part be related to gaps within the WHO organizational framework categories that do not adequately reflect the current status of the science of improvement. For example, the WHO information category (and hence paper results) focuses primarily on information use by providers and clients; however, use of information (e.g. aggregated quality of care measures) by users and health system managers/providers for the purposes of continuously improving care and essential system functions is a central principle of all improvement efforts. The results do not address this critical use of information to improve care. It would seem that there is a good case to be made for proposing an expansion of the WHO organizational "information" category to include the purposeful use of information related to quality of care (all levels of health system) to track and improve care.
Although the paper argues for "common measurement tools for MNCH to assess common priority issues and barriers to QOC", the lack of any discussion of quality of care measurement methods or quality of care measures with respect to "interventions to improve care" is a major weakness of the paper. The quality of care literature, including MNCH literature, is filled with such measures. If one of the stated primary outcome of interest is "effectiveness of care" (one of the IOM aims) then measures of clinical effectiveness of care must be incorporated into the research review findings with respect to specific interventions.

Response: We have included the following clarification in the limitations section of the manuscript – "Considering that the scope of a meta-review is limited to gathering evidence from systematics reviews and meta-analyses, it is likely that we might have missed information on facilitators and barriers to improving QoC discussed in others types of studies and reports. For example, we did not find systematic reviews or meta-analyses dedicated to analysing measurement methods and tools to measure QoC. We acknowledge that the quality of the methods used to measure QoC is as important as identifying the facilitators and barriers, however, no information could be found in the included systematic reviews. This suggests the requirement for a systematic review that synthesises the existing evidence in this area."

Comment on Methods section:
p. 4. "We restricted the meta-review to published and unpublished systematic reviews and/or meta-analyses of interventions (any new measure which is not a standard guideline or recommendation) and existing strategies (measures that are well established and incorporated in standard guidelines or recommendations) to improve QOC….."
The definition of "interventions" and "strategies" in the above sentence is not clear to this reviewer and further adds to the confusion around the primary objective of the study (to analyze evidence on

approaches to improving quality or to analyze evidence with respect to important quality of care gaps).

Response: We have deleted ‘existing strategies’ which we understand was a confusing phrase.

Comments on Conclusion section:
“Priority issues in QOC were common for MNCH and can be grouped under eight [WHO organizational framework] domains”.
“Priority issues in QOC” is used loosely throughout the paper, including as the title of Table 1. What does this mean exactly and what does it mean that “priority issues” can be grouped under 8 [WHO organizational] domains? Is the research addressing “priority issues in QoC” with regard to major gaps that impede delivery of high quality of care (“barriers”), facilitators to QOC (QI and other interventions) or other “priority issues” (e.g. research gaps, measurement gaps, etc.)?

Response: We have corrected the use of the term ‘priority issues’. As advised we have restricted this paper to only the ‘facilitators and barriers to improving quality of care for pregnant women, newborns and children’. The changes are highlighted in track-changes throughout the manuscript in the marked-up copy.

VERSION 2 – REVIEW

REVIEWER	Kathleen Hill University Research Co. LLC-Center for Human Services, USA
REVIEW RETURNED	02-May-2014

- The reviewer completed the checklist but made no further comments.